DOCUMENT RESUME

ED 094 168 CE 001 672

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TITLE	Evaluation of Service Station Attendant-Auto Care Project.
INSTITUTION	Pine Lodge Halfway House, Lansing, Mich.
SPONS AGENCY	Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Michigan State Dept. of Education, Lansing.
PUB DATE	Jul 73
NOTE	23p.
EDRS PRICE	MF-$0.75 HC-$1.50 PLUS POSTAGE
DESCRIPTORS	*Delinquency Prevention; Delinquent Rehabilitation; Disadvantaged Youth; Entry Workers; Job Skills; *Job Training; *Program Evaluation; Sales Occupations; Sales Workers; *Secondary Grades; Tests; Vocational Education
IDENTIFIERS	Elementary Secondary Education Act Title III; ESEA Title III; *Service Station Attendant

ABSTRACT

The project described offers an approach to providing occupational skills to socially and educationally handicapped youth, specifically the skills necessary for a service station attendant in driveway salesmanship and auto care. The 10-page evaluation report presents project goals and objectives with evaluation data (represented graphically) and evaluator's comments, and proposed modifications and additions for the following year. The six tests used in evaluating the learners' acquisition of skills consonent with the project's objectives are appended. (AJ)

ED 094168

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EVALUATION OF SERVICE STATION ATTENDANT-AUTO CARE PROJECT

FINAL REPORT

to

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from

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JULY 30, 1973

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INTRODUCTION

This evaluation report is prepared pursuant to a review of existing student data, study of the 1972-1973 E.S.E.A. Title III proposal, and discussions with the project staff.

Since the project did not get officially underway until the middle of the funding period and the Evaluator was not involved until the summer of 1973, evaluation data are somewhat incomplete. It is believed, however, that sufficient data do exist to indicate a promising future for this effort.

EVALUATION RESULTS

The following evaluation data are organized according to the objectives specified in the 1972-1973 E.S.E.A. Title III proposal and present the facts available as of the date of this report. Before presenting these data, however, two general comments should be made. First, although the original proposal refers to delinquent boys, three girls have been involved in the training; and one of these girls successfully graduated from the program. Second, the proposal typically calls for evaluation data to be obtained four and ten weeks after student enrollment in the program. In reality, the students were advanced on the basis of their individual performances as observed and assessed by the instructor, and formal testing was conducted during the last week of the students' training rather than four or ten weeks after enrollment.

Evaluation data and comments relevant to each project goal and objective (which are listed verbatim) follow.

Project Goal: To Train Adolescent Delinquent Boys In the Basic Procedures of Driveway Salesmanship

Objective 1: Each student will operate with 100% accuracy a cash register within 4 weeks after enrollment as measured by teacher prepared test consisting of 10 money changing problems.

Test I was developed by the project staff to measure achievement of this objective (see Appendix). The results of this test for the six graduates of the program are presented in Figure 1 on the next page.

Although only two of the students reached the desired criterion level of 100%, an examination of Test I reveals that this test measured much more than just "cash register operation". For example, to successfully answer item 1, the student must (a) correctly read the problem, (b) determine the cost of a quart of oil and the cost of a quart of windshield wiper solvent, (c) determine the correct amount of tax, and (d) select the correct denomination of change, in addition to operating the register correctly. Thus, the mean of 92% correct responses appears adequate.

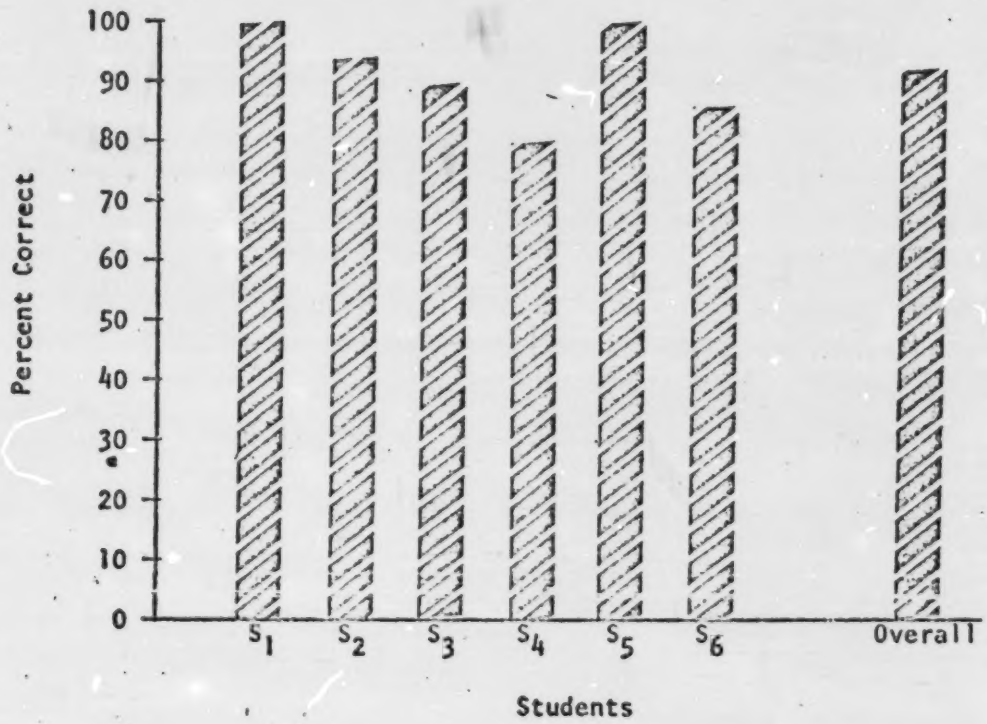

Figure 1. Percent of Correct Responses on Test I

Objective 2: Each student will operate with 100% accuracy a credit card imprinter within 4 weeks after enrollment as measured by teacher prepared test consisting of 10 credit card problems.

Test II was developed to measure achievement of this objective. Test results for the six graduates are shown in Figure 2.

As with the first test, Test II measures more than just operating a credit card imprinter, and the data should be interpreted in this light. Again, in the opinion of the Evaluator, the mean percent of correct responses is quite satisfactory.

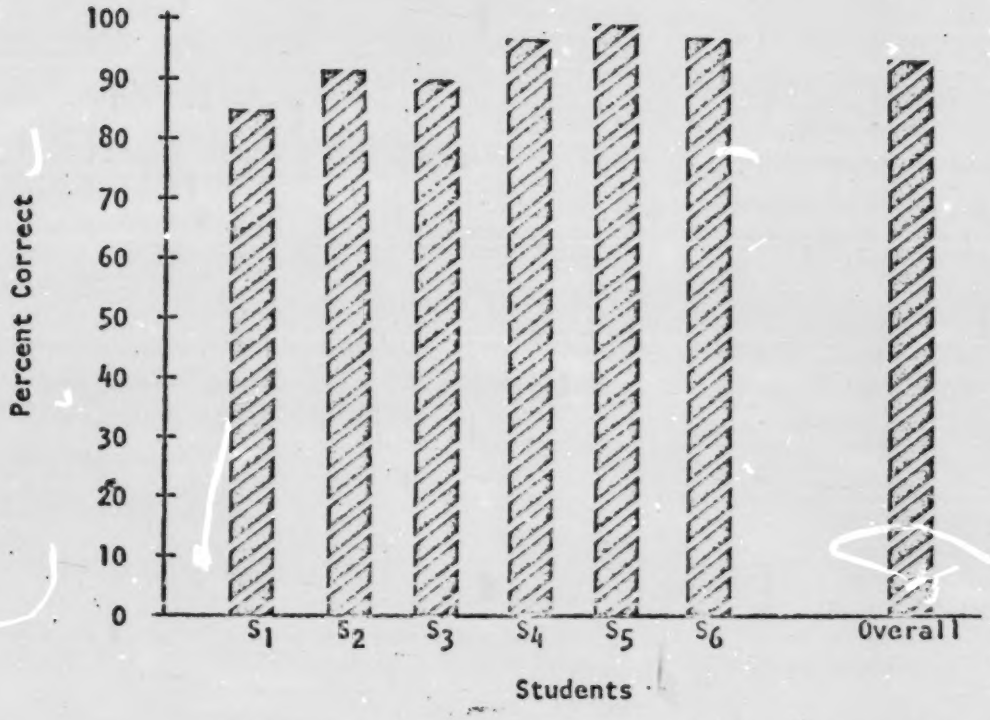

Figure 2. Percent of Correct Responses on Test II

Objective 3: Each student will operate with 95% accuracy a gasoline pump within 4 weeks after enrollment as measured by 10 real teacher supervised situations.

Objective 4: Each student will be able to check oil level and make necessary adjustments with 100% accuracy within 4 weeks after enrollment as measured by 10 teacher supervised real situations.

Objective 5: Each student will be able to check radiator fluids and make necessary adjustments with 100% accuracy within 4 weeks after enrollment as measured by 10 teacher supervised real situations.

Objective 8: Each student will be able to display social skills required for salesmanship within 4 weeks after enrollment as measured by teacher devised simulated situations requiring use of these skills and real situations utilizing teacher supervision.

Test V was devised to measure these objectives. The instructor observed the students in actual selling situations and converted these observations into numerical scores of the percent of correct responses. These data are shown in Figure 3.

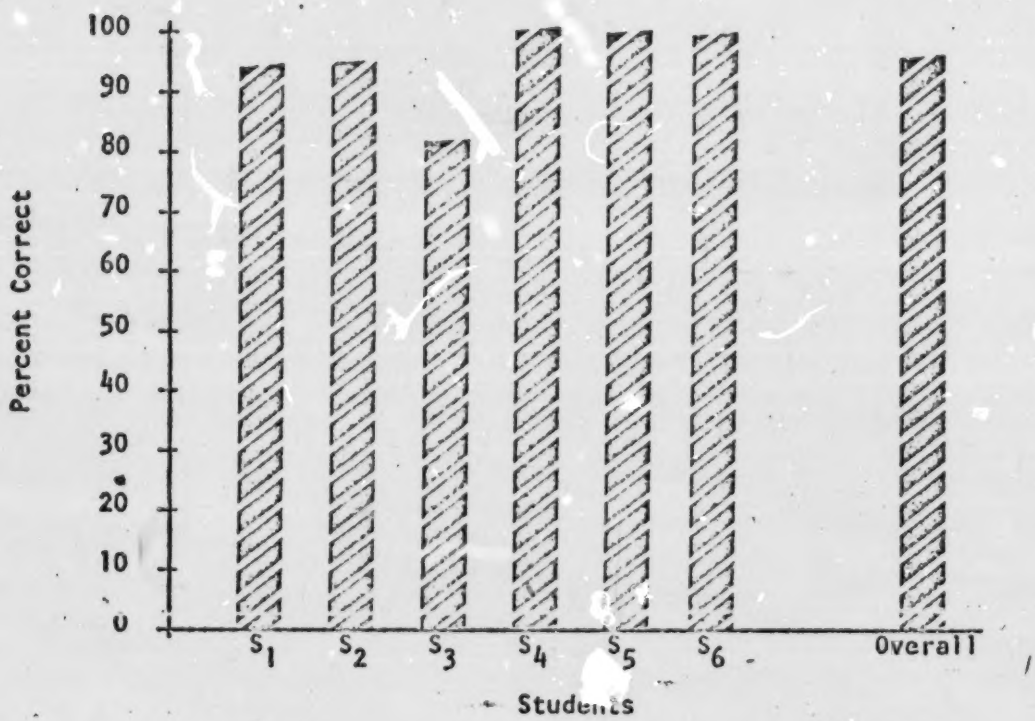

Figure 3. Percent of Correct Responses on Test V

While Test V was somewhat subjective in nature, many aspects of the students' performances were recorded, and the resulting scores were quite high.

Objective 6: Each student will be able to change windshield wiper blades with 100% accuracy within 4 weeks after enrollment as measured by 10 teacher supervised real situations.

No actual data exist relative to this objective; however, the instructor stated that most of the students had experience in changing windshield wiper blades.

Objective 7: Each student will be able to recall and identify with 100% accuracy within 4 weeks after enrollment the vital components of the automobile as measured by teacher devised test consisting of student identification from check list of vital components.

Test IV was developed by the instructor as a means of measuring this objective. Scores for Test IV are shown in Figure 4.

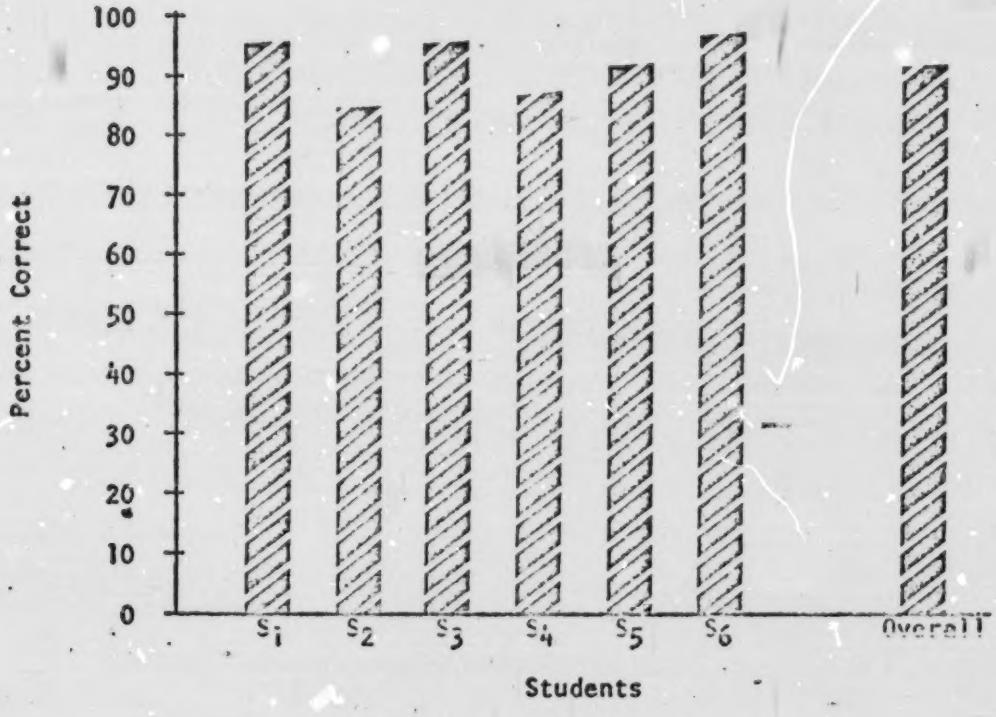

Figure 4. Percent of Correct Responses on Test IV

Again, it must be noted that this test measured more than that strictly called for by the objective; i.e., not only did the student have to identify each component, he had to note its function. Consequently, it is again felt that the overall percentage of 92% correct is quite satisfactory.

Project Goal: To Train Adolescent Delinquent Boys
In the Basic Skills Required for Minor Auto Care Service

Objective 1: Each student will be able to change oil and oil filter with 100% accuracy within 10 weeks after enrollment as measured by teacher evaluation in actual situations.

Objective 2: Each student will be able to perform basic lubrication of auto with 100% accuracy within 10 weeks after enrollment as measured by teacher evaluation in actual situations.

Objective 3: Each student will be able to change and repair tires with 100% accuracy within 10 weeks after enrollment as measured by teacher evaluation in actual situations.

Test VI addresses itself to measuring conceptual knowledge relevant to these objectives. In addition, the instructor has stated that he observed all of the students successfully perform the tasks specified in these objectives. The results of Test VI are shown in Figure 5. It should be noted that Test VI covers considerably more than the topics mentioned in Objectives 1, 2, and 3.

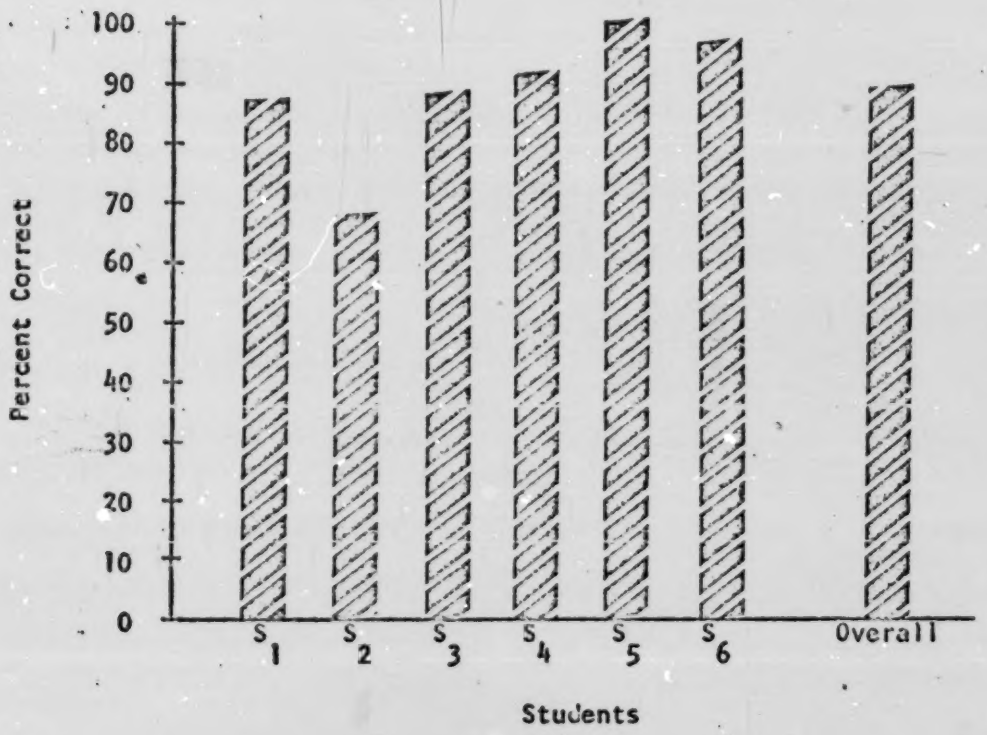

Figure 5. Percent of Correct Responses on Test VI

Objective 4: Each student will be able to replace the fan belt with 100% accuracy within 10 weeks after enrollment as measured by teacher evaluation in actual situations.

While documentation is not available, the instructor stated that he has observed each of the graduates correctly replace a fan belt.

Objective 5: Each student will be able to replace the air filter and check the carburetion with 100% accuracy within [unspecified] weeks after enrollment as measured by teacher evaluation in actual situations.

The instructor has stated that each of the students had experience in changing air filters. Additionally, it should be noted that Question 16 on Test VI asks how to tell when an air filter is bad. It is the opinion of the instructor that the

second part of this objective, i.e., "check the carburetion", in an inappropriate task since this is a service which is seldom performed on modern engines.

Objective 6: Each student will be able to repair the cooling system, thermostat control with 100% accuracy within [unspecified] weeks after enrollment as measured by teacher evaluation in actual situations.

Test III is entirely concerned with the cooling and emission control systems of automobiles. The results of this test are shown in Figure 6. Each of the students also was observed by the instructor while replacing or repairing a thermostat control.

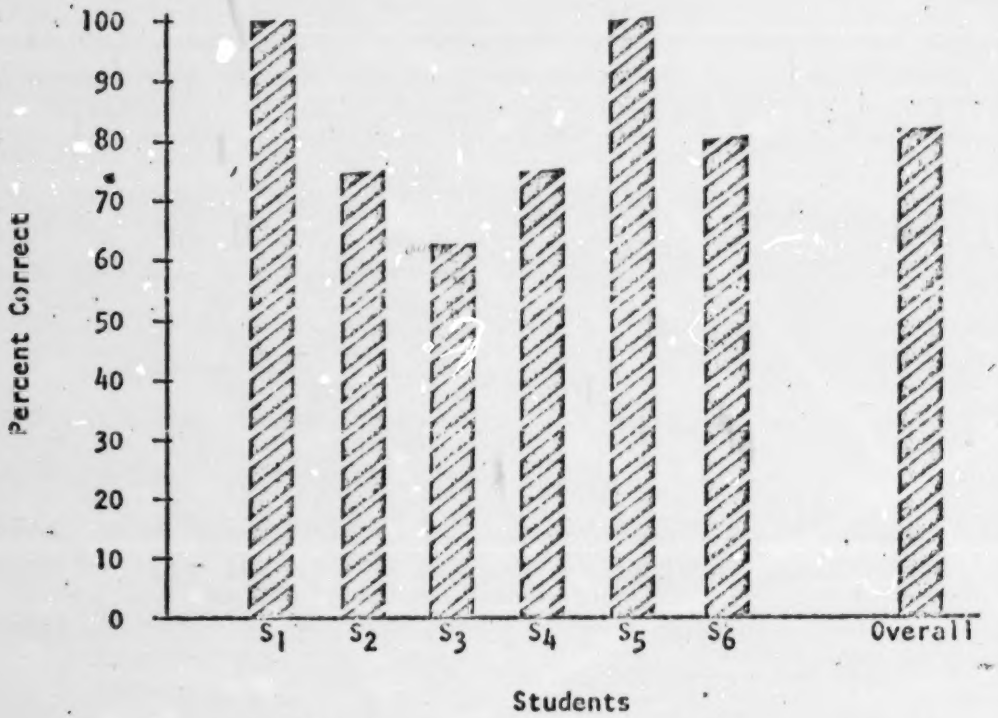

Figure 6. Percent of Correct Responses on Test III

Objective 7: Each student will be able to replace spark plugs with 100% accuracy within 10 weeks after enrollment as measured by teacher evaluation in actual situations.

Objective 8: Each student will be able to replace points with 100% accuracy within [unspecified] weeks after enrollment as measured by teacher evaluation in actual situations.

Objective 9: Each student will be able to perform a minor tune-up (engine timing) with 100% accuracy within [unspecified] weeks after enrollment as measured by teacher evaluation in actual situations.

These three objectives are concerned with performing minor engine tune-ups. Although precise data relative to achievement of these objectives are not available, it is the instructor's opinion that five out of the six graduates could adequately perform a minor tune-up.

Objective 10: Each student will be able to replace the exhaust system (mufflers, tail pipe, etc.) with 100% accuracy within [unspecified] weeks after enrollment as measured by teacher evaluation in actual situation.

Five out of the six graduates successfully replaced exhaust system components as judged by the instructor. The only student not given experience in these tasks was the female. The rationale was that she did not possess the strength required to perform these functions.

Project Goal: To Train Adolescent Delinquent Boys in the Basic Skills Required for Automotive Electircal System and Brake and Wheel Alignment Service

Only very recently has the first student entered this phase of the training; therefore, no evaluation data are available.

Project Goal: To Train Adolescent Delinquent Boys in the Management Aspects of Operating a Service Station - Auto Care Center

To date, no students have entered this phase; consequently, no evaluation data are available.

Project Goal: To Train Adolescent Delinquent Boys for Entry Into the Service Station-Auto Maintenance Career Lines as a Means of Intervention in the Illegitimate or Criminal Careers which Often Lead Inevitably to Prison

Objective 1: Each student completing the program will within 6 months after release, obtain employment in the auto care maintenance field and maintain employment not necessarily in this field, for at least an additional 6 months.

Since the services of an Independent project Evaluator were not contracted for until the summer of 1973, a questionnaire has not yet been developed to obtain information relative to this objective. However, the Instructor knows that four of the graduates currently are working in service stations. Of the remaining two graduates, one is too young to be employed, and the Instructor is uncertain about the employment situation of the other.

Objective 2: Each student completing the program will abstain from serious law violation for at least 1 year after release.

Data relative to this objective currently are not available.

GENERAL EVALUATION COMMENTS

Although a strict interpretation of the project goals and objectives would lead one to state that only a few of the objectives actually were achieved, it is the opinion of the Evaluator that a more lenient interpretation should be made. Three bases for this opinion exist. First, most of the objectives call for 100% achievement by 100% of the students involved -- a criterion level which is nearly impossible to achieve. Second, the evaluation instruments developed by the Instructor are considerably broader in scope than required by the objectives. Although the Evaluator believes -- as does the Instructor -- that this broader scope more realistically covers the range of skills required to be successful service station employees, it is obvious that student performances demanded by the test items are significantly more complex than those required by the objectives; and, therefore, the resulting scores should be interpreted in light of these differences. Finally, the project did not have the services of an Evaluator throughout essentially its entire first year; and, thus, some evaluation instruments were not developed.

PROPOSED MODIFICATIONS AND ADDITIONS FOR THE 1973-1974 EVALUATION

Several modifications and additions are proposed for the 1973-1974 evaluation effort. Each of these is discussed separately below.

Modify Existing Objectives

It is recommended that the existing learner objectives for project goals 1 and 2, i.e., modules 1 and 2, be reviewed and revised. Nearly all of these objectives set unrealistic criteria levels; e.g., 100% of the students will score 100%; and there is at least one case where the content of an objective is inappropriate.

Maintain Written Documentation of Student Progress

Inasmuch as several of the evaluation techniques call for instructor observation of student performance, it is recommended that a simple data collection form be developed and maintained. This form would be used to record the date on which the instructor observes a student correctly performing one of the specified tasks, e.g., changing an air filter.

Maintain Written Documentation Regarding Student Work Attitude Behaviors

Again, a simple data collection form will be developed and maintained for recording student work attitude behaviors such as punctuality and attendance.

Obtain Follow-Up Data On Graduates

Inasmuch as one of the major goals of the effort is to reduce recidivism among youth who have participated in the program, effort will be devoted to developing a follow-up instrument to gather data on the graduates of the project. Specific information to be obtained from such an instrument will be jointly decided by the Project Director and the Evaluator; however, it is anticipated that data will be gathered relative to:

- the current occupational or educational status of each youth,
- the work record of each youth,
- the frequency and type of legal infractions (if any) committed by each youth,
- the improvement or expansion of the program (the graduates will be asked to make specific recommendations).

Determine Average Cost Per Graduate

The project and station financial records will be analyzed to determine average cost per graduate. This will be done by subtracting project income from project expenses and then dividing by the number of graduates. Such cost data should be very relevant to determining whether the program should be replicated and/or expanded.

Develop Additional Learner Objectives

Now that a student has entered training on goal 3 , module 3, it is imperative that learner objectives for this goal be established in order that proper evaluation can be conducted. Similarly, if it is anticipated that students will enter training on module 4 during 1973-1974, learner objectives must be specified.

APPENDIX

Name _____

Date _____

TEST I

Directions - The following questions will be answered as though they were actual customer situations. The purchase will be rung up on the cash register using the proper keys for each purchase. The change due the customer will be written out in the proper denominations. For example, if a customer buys a thirteen cent item and gives you a quarter, his change would be 12¢, written out as 2 pennies and a dime. Correct change, by the way, doesn't mean just the right amount, but also the correct denominations. Any questions you have concerning this test will be answered.

1. A customer gets $3.25 worth of gasoline, needed a quart of oil (ARCO Supreme) and a quart of windshield wiper solvent.

   A.) How much tax do you charge for this purchase? _____

   B.) How much is the total purchase? _____

   C.) If the customer gives you a $20 bill, what is his correct change? _____

   _____

2. A customer comes in for an oil change and a lube job. His car requires a Hastings 115 oil filter ($4.29 each) and he wants 5 quarts of ARCO Plus oil (green cans).

   A.) How much should his bill be if the lube costs $1.25? _____

   B.) What is his correct change from a $10.00 bill? _____

3. A customer comes in with a flat tire and you determine that it can be plugged for a price of $1.50. In addition, he asks you to check his spare and you find that it has a defective valve stem, which costs $1.75 to replace.

   A.) What is the total price for these things? _____

   B.) What is his correct change from $4.00? _____

4. A customer comes in with a dead battery and you sell him a new one for our $17.77 special price.

   A.) How much is his bill? _____

   B.) How much tax do you charge him? _____

   C.) What is his correct change from a $20 bill? _____

5. A customer on the drive comes in and buys $3.33 worh of gas and gives you a $5 bill.

   A.) What is his correct change? _____

6. A customer gets a tune-up. The spark plugs cost $12.75, the rotor cap costs $4.95, the rotor costs $2.35, the breaker points cost $3.25, and the condenser costs $1.75. You charge him $10.00 labor and add a quart of ARCO (red cans) to his engine.

   A.) How much sales tax should you charge him? _____

   B.) What is his total bill? _____

   C.) What is his correct change from $40.00? _____

7. A customer comes in and buys a can of STP ($1.50) and a quart of windshield wiper solvent. He gives you $3.00.

   A.) How much should you charge him? _____

   B.) How much is the tax on this purchase? _____

8. A customer comes in for a grease job? If you charge him $2.25 for it, how much will his total bill be? _____

   A.) If he gives you $3.00, what is his correct change? _____

9. A customer comes in with a broken fan belt. His engine has also overheated and he has lost 2 gallons of antifreeze. You replace the fanbelt, which costs $4.35, charge him $2.00 labor to put it on, and put 2 gallons of antifreeze in his radiator at $2.25 a gallon.

   A.) How much sales tax should he pay? _____

   B.) What is his total bill? _____

   C.) What is his correct change from a $20 bill? _____

10. A customer has 2 tires balanced at $2.00 per tire and buys $1.00 worth of gas.

    A.) How much sales tax should he pay? _____

    B.) What is his total bill? _____

Name _____

Date _____

TEST II

Directions - The following items will be written up on credit card slips and run through the imprinter as though they were actual purchases by customers. A credit card and signature are not necessary in this test and the space for the license number of the customer's car may also be omitted, but the rest of the card should be filled out properly. Turn in only the tissue copy of the card and discard the rest. The tissue copy is the one that you give the customer.

1.) Two tires balanced at $2.00 per tire and one dollar's worth of regular gas

2.) A fanbelt which costs $4.35, $2.00 labor for putting the banbelt on, and 2 gallons of antifreeze at $2.25 per gallon

3.) A $2.25 grease job

4.) A can of STP at $1.25 per can, a quart of windshile wiper solvent at $.75 per can

5.) Eight J-11-J spark plugs for $12.75, a rotor cap for $4.95, a rotor for $2.35, breaker points for $3.25, a condenser for $1.75, $10.00 labor for the tune-up, and a quart of ARCO (red cans)

6.) $3.33 worth of Arco Supreme

7.) A Delco Energizer battery at $17.77

8.) Plug a tire for $1.50 and replace a valve stem for $1.75

9.) A Hastings 115 oil filter for $4.29, 5 quarts of ARCO Plus oil

10.) $3.25 worth of regular gasoline, a quart of ARCO Supreme oil and a quart of windshield wiper solvent

Name _____

Date _____

TEST III

Directions - The following questions on the automotive cooling system are to be answered either true or false.

1.) _____The cooling system of an average automobile handles enough heat to keep a five room house warm in zero degree weather.

2.) _____When your car is overheating, such as in a traffic jam or on a hot day, you should remove the radiator cap and pour in plenty of cold water.

3.) _____The Pressure Radiator Cap permits the engine to run hotter.

4.) _____The entire cooling system must be checked in the spring and the fall.

5.) _____Before installing a new Radiator Pressure Cap, you must test the system with a Pressure Tester.

6.) _____If a car shows a constant coolant loss, you check the Pressure Cap and the entire cooling system with a Pressure Tester.

7.) _____The lever-vent type radiator cap can help to prevent burns and scalds from opening an overheated radiator.

8.) _____Running a car with the Pressure Cap in the Release position will prevent water loss and overheating.

9.) _____The Thermostat is to prevent overcooling and overheating of the engine.

10.) _____The Thermostat helps the engine to warm up quickly.

11.) _____An Emission Control gas cap is similar to a Radiator Pressure Cap.

12.) _____You cannot use a regular vented gas cap on a 1971 or later car which originally had an Emision Control Gas Cap.

13.) _____You can use an Emission Control Gas Cap on pre-1971 cars.

14.) _____Locking gas caps sometimes give your customers better gas mileage.

15.) _____Oil filler caps having filter elements must be cleaned or replaced regularly.

16.) _____On cars built after 1964, the oil filler cap is an essential part.

Name _____

Date _____

TEST IV

Directions - On this test, you will be asked to locate and identify all of the basic automotive components listed below and then, on your own, tell what they are for.

Item	Identification	Function of the part
1. Carburetor		
2. Air Cleaner		
3. Oil Filter		
4. Gas Filter		
5. PCV Valve		
6. Starter		
7. Battery (pos. & neg.)		
8. Oil Dip Stick		
9. Transmission Dip Stick		
10. Voltage Regulator		
11. Alternator-Generator		
12. Coil		
13. Distributor		
14. Points		
15. Condenser		

Item	Identification	Function of the part
16. Spark Plugs		
17. Radiator		
18. Thermostat		
19. Power Steering Pump		
20. Distributor Rotor		
21. Brake Fluid Reservoir		
22. Transmission		
23. Muffler and Tailpipe		
24.		
25. Brake Drums		
26. Brake Shoes		
27. Power Steering Dip Stick		
28. Fuel Pump		
29. Wiper Solvent Reservoir		
30. Fan		
31. Water Pump		

Item	Identification	Function of the part
32. Fuse Panel		
33. Timing Mark		
34. Oil Filler Cap		
35. Radiator Cap		
36. Universal Joints		

Name _____

Date _____

TEST V

Directions - Each student will service ten customers on the drive in the normal fashion. The manner in which this is done will be observed, watching for such things as the accuracy of pumping, courtesy to the customer, how well the windows and headlights are cleaned, if the oil is checked, etc. A short critique of the student's performance will be written below for each of the ten customers.

Name _____

Date _____

TEST VI

Find the answer to the following question in the parts catalogs.

1.) Find the oil filter and air filter numbers for a 1969 Ford 302 cu. in. engine, with a 2-barrel carburetor.

Oil filter number - List price - Dealer price -

Air filter number - List price - Dealer price -

2.) How tight should a new oil filter be tightened?

3.) How many quarts of oil do most American cars require when changing both the oil and the filter?

4.) How do you find a leak in the cooling system?

5.) What are the two methods of repairing a tire?

6.) What is the purpose of a gasket?

7.) How can you tell if a belt needs replacing?

8.) What does a muffler hanger do?

9.) How do you time an engine?

10.) How many spark plugs does an 8-cylinder car require?

11.) What are vehicle specifications?

12.) What does a fuel filter do?

13.) Approximately how many gallons of fuel does the average American car hold?

14.) What is a wiper blade and how do you know if one is bad?

15.) Find the part numbers and the list prices for a complete exhaust system on a 1969 Chevrolet 6 cylinder.

16.) How can you tell if the air filter is bad?

17.) What does it mean to rotate tires? Why is this done?

18.) What is a Hydrometer and what does it do?

19.) Why would you use a torque wrench? Name several places on a car where one might be required.

20.) What precautions should you observe when charging a battery?